

INTEGRATED CIRCUIT DEVICES HAVING PAD CONTACT PLUGS IN THE
CELL ARRAY AND PERIPHERAL CIRCUIT REGIONS OF THE INTEGRATED
CIRCUIT SUBSTRATE AND METHODS OF FORMING THE SAME

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ABSTRACT OF THE DISCLOSURE

Integrated circuit devices, for example, dynamic random access memory (DRAM) devices, are provided including an integrated circuit substrate having a cell array region and a peripheral circuit region. A buried contact plug is provided on the integrated circuit substrate in the cell array region and a resistor is provided on the integrated circuit substrate in the peripheral circuit region. A first pad contact plug is provided on the buried contact plug in the cell array region and a second pad contact plug is provided on the resistor in the peripheral circuit region. An ohmic layer is provided between the first pad contact plug and the buried contact plug and between the second pad contact plug and the resistor. Related methods of fabricating integrated circuit devices are also provided.

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15 Doc #344759